





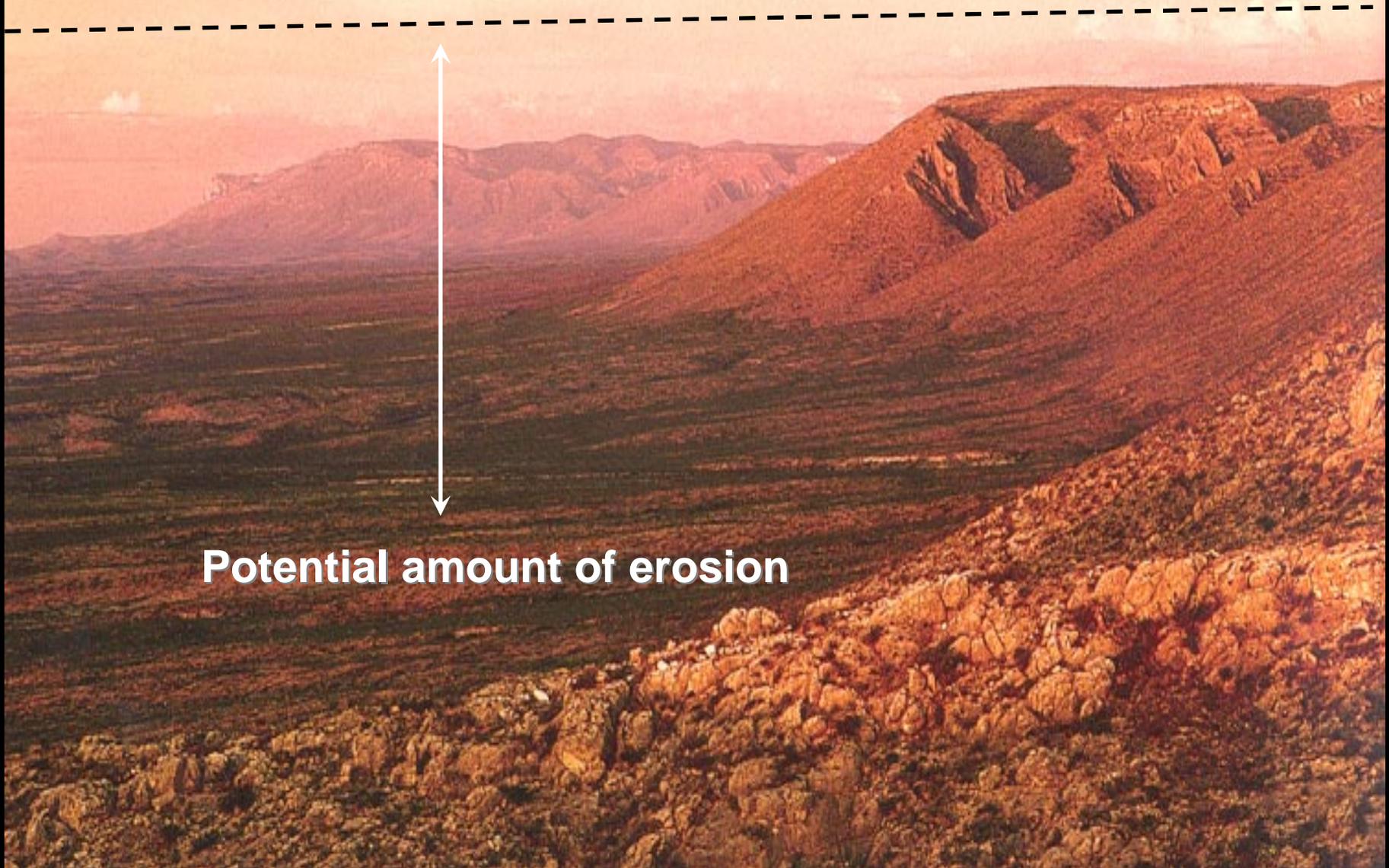
Hypothetical sea level during the Permian

Shelf

Basin

Photo courtesy of T. Firkins' "Geology 101" Interpretive program

Hypothetical level of sediment deposition since the Permian



Potential amount of erosion

Hypothetical sea level during the Permian

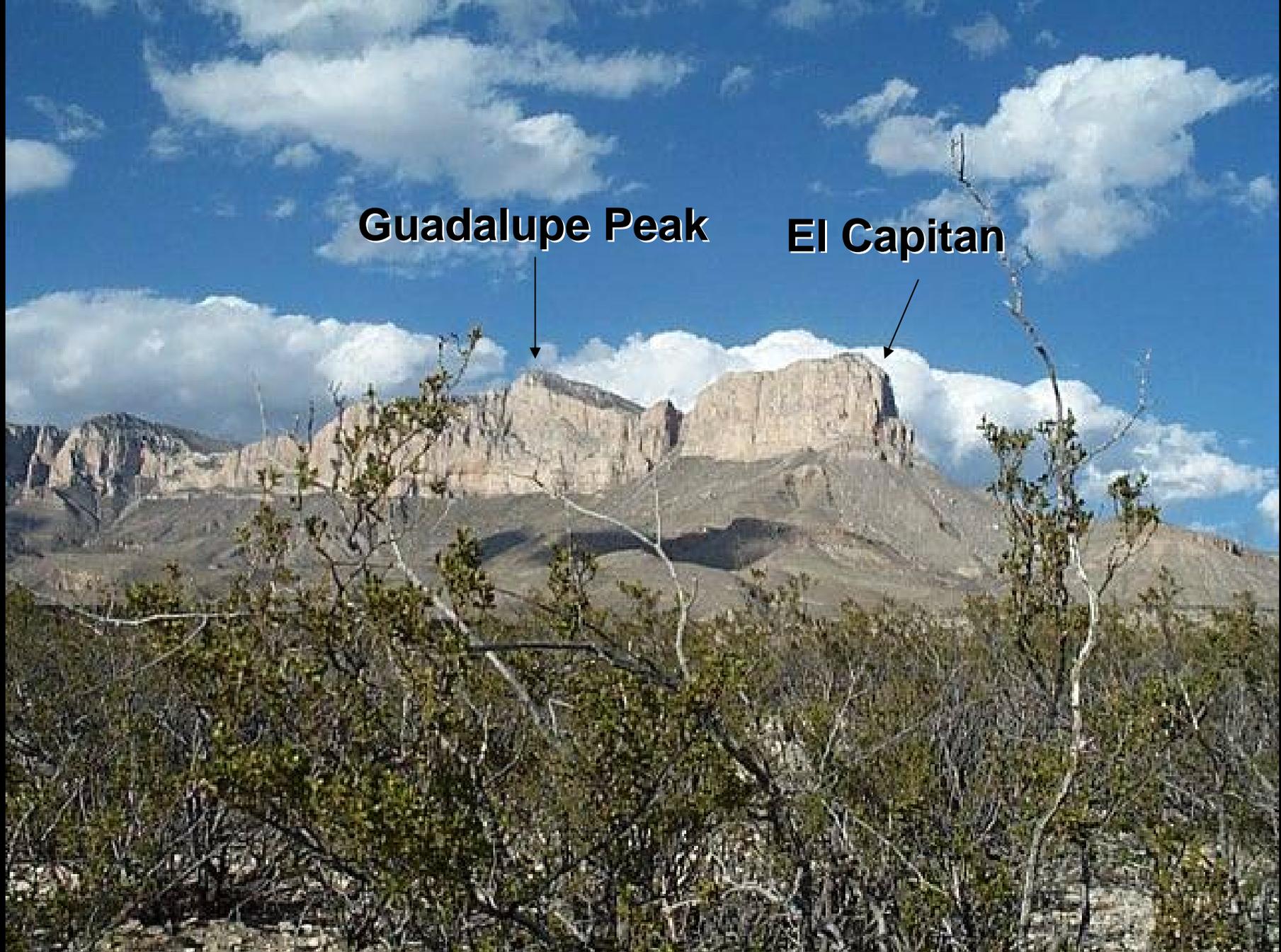


Backreef

Reef

Forereef

Basin



Guadalupe Peak

El Capitan

Delaware Basin

El Capitan

Guadalupe Mountains



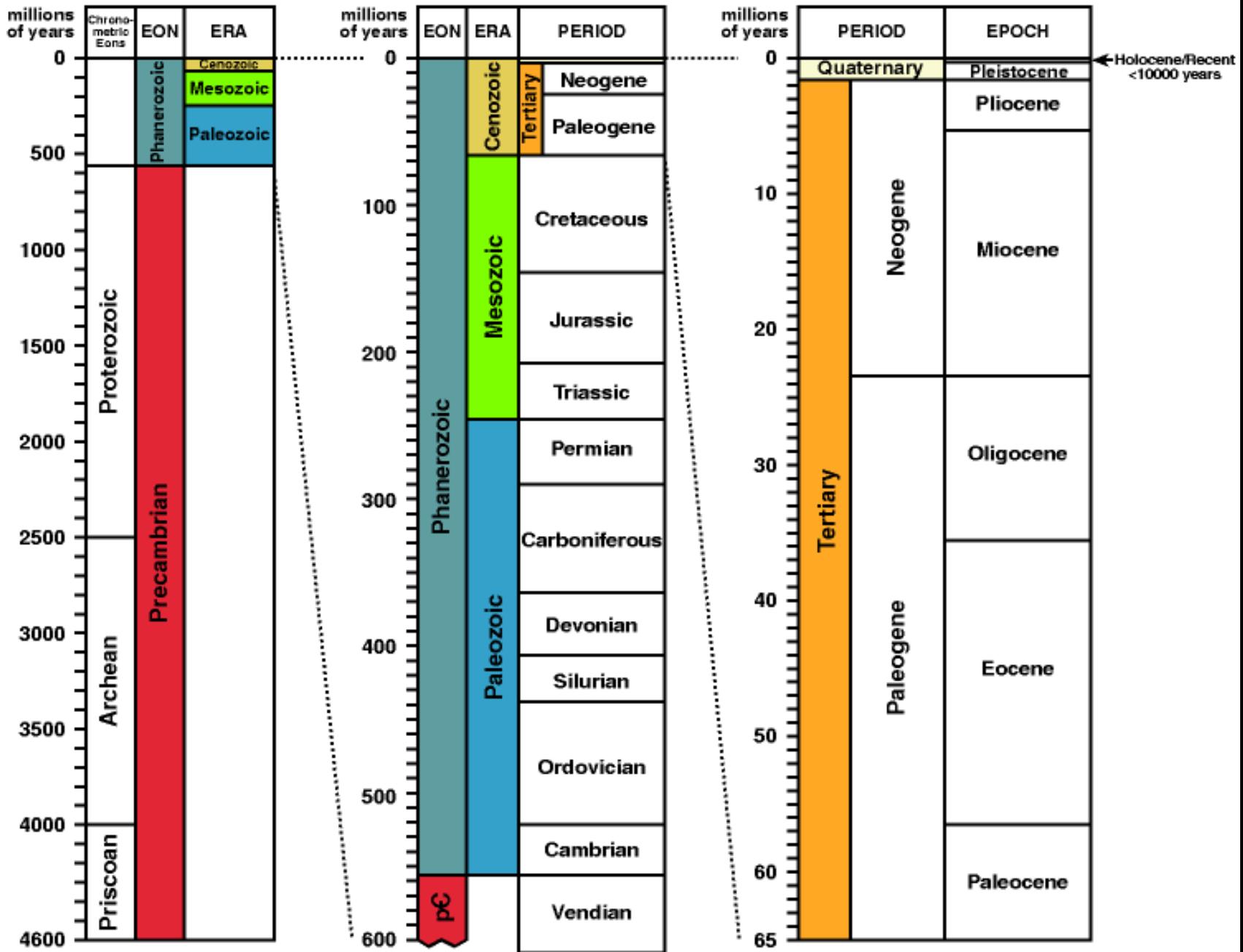


Chart from University of Calgary Geology & Geophysics website
<http://www.geo.ucalgary.ca/~macrae/timescale/timescale.html>

EON	ERA	PERIOD	EPOCH	TIME SPAN (million years)	AGE of			
Phanerozoic	Cenozoic	Quaternary		Holocene	0-2	Mammals	Humans	
				Pleistocene			Mammals develop and become dominant	
		Tertiary	Neogene	Pliocene			2-5	Extinction of dinosaurs (beginning of Paleocene)
				Miocene			5-24	
		Paleogene		Oligocene			24-37	
				Eocene			37-58	
				Paleocene			58-66	
	Mesozoic	Cretaceous			66-144	Reptiles	Flowering plants, height of dinosaurs	
		Jurassic			144-208		1st birds/mammals, abundant dinosaurs	
		Triassic			208-245		First Dinosaurs	
	Paleozoic	Permian			245-286	Amphibians	End of trilobites & other marine animals	
		Carboniferous	Pennsylvanian		286-320		Abundant insects, first reptiles	
			Mississippian		320-360		Large primitive trees	
		Devonian			360-408	Fishes	First amphibians	
		Silurian			408-438	Marine Invertebrates	First land plant fossils	
		Ordovician			438-505		First Fish	
		Cambrian			505-570		1st shelled organisms, trilobites dominant	
	Proterzoic	Also known as Precambrian			570-2,500		First Multicelled organisms	
	Archean				2,500-3,800		First single-celled organisms	
	Hadean				3,800-4,600		Approx age of oldest rocks (3800)	

Chart from California State Biological Sciences website:
http://arnica.csustan.edu/common/geologic_time.htm

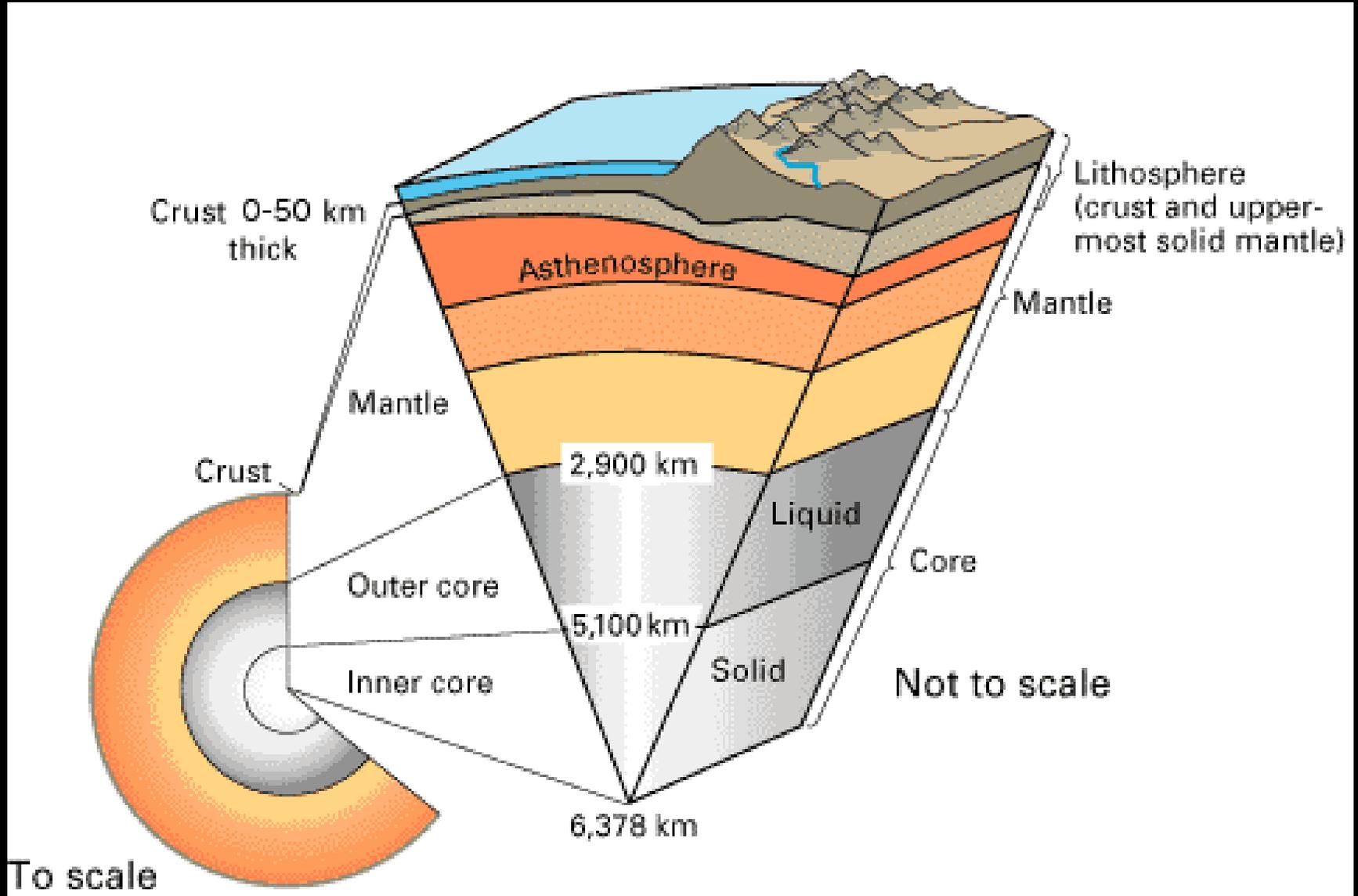
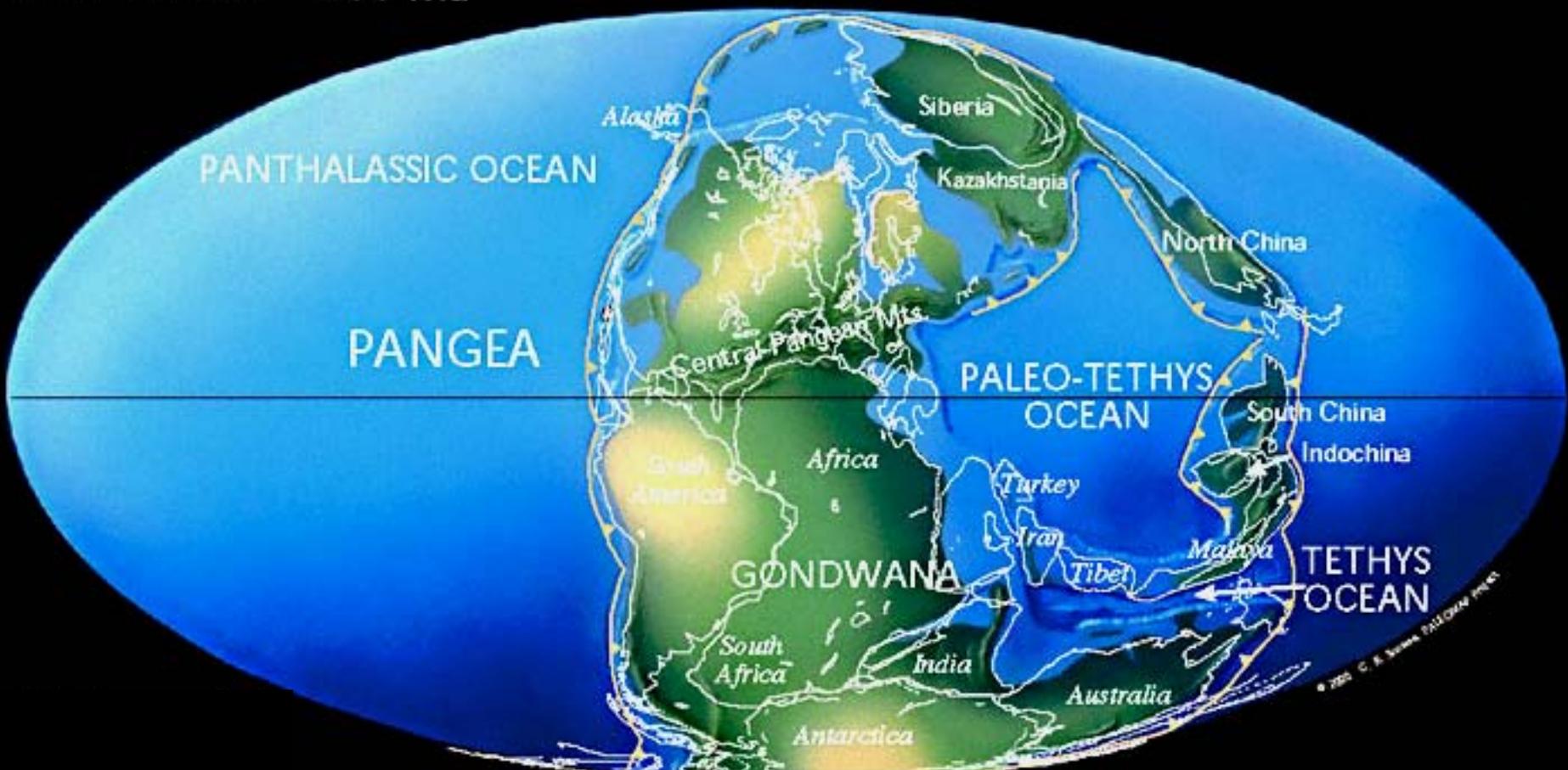


Diagram from the San Jose State University, Department of Geology website: <http://geosun.sjsu.edu/105d/exped7/5.html>

Late Permian 255 Ma



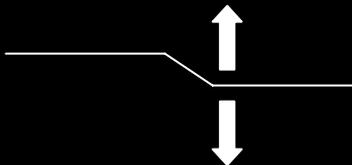
- Ancient Landmass 
- Modern Landmass 
- Subduction Zone (triangles point in the direction of subduction) 
- Sea Floor Spreading Ridge 

Diagram from Paleomap Project web site:
<http://www.scotese.com/earth.htm>

Late Jurassic 152 Ma



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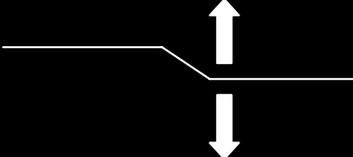
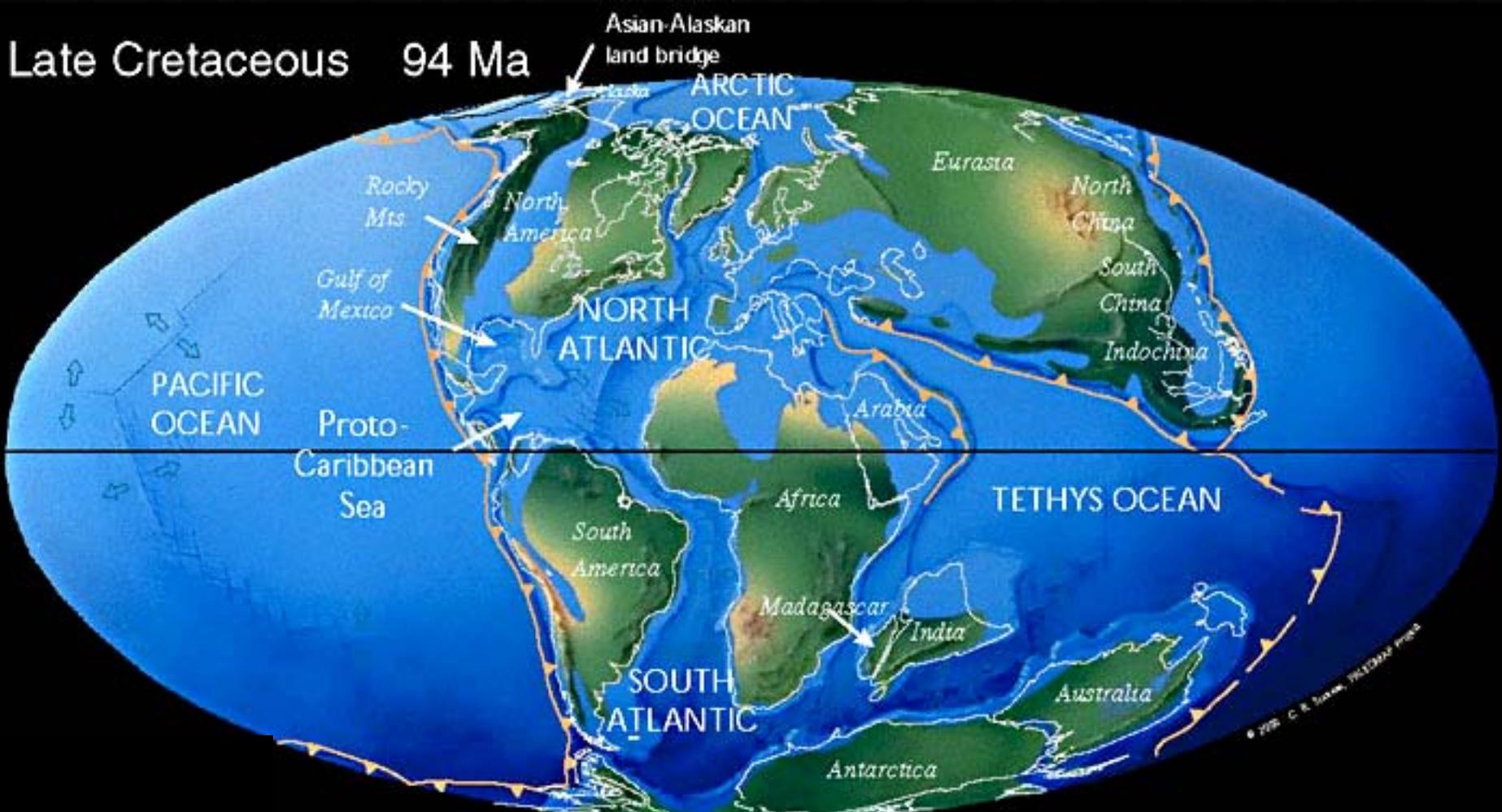
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Late Cretaceous 94 Ma



Ancient Landmass



Modern Landmass



Subduction Zone (triangles point in the direction of subduction)



Sea Floor Spreading Ridge

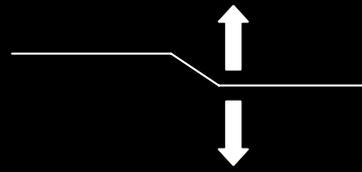


Diagram from Paleomap Project web site:

<http://www.scotese.com/earth.htm>

Middle Miocene 14 Ma



Ancient Landmass



Modern Landmass



Subduction Zone (triangles point in the direction of subduction)



Sea Floor Spreading Ridge

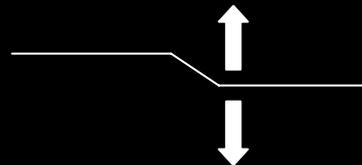


Diagram from Paleomap Project web site:
<http://www.scotese.com/earth.htm>

Last Glacial Maximum 18,000 years ago



Ancient Landmass 

Modern Landmass 

Subduction Zone (triangles point in the direction of subduction) 

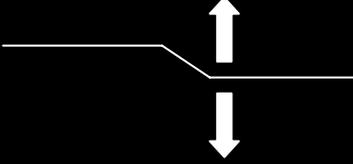
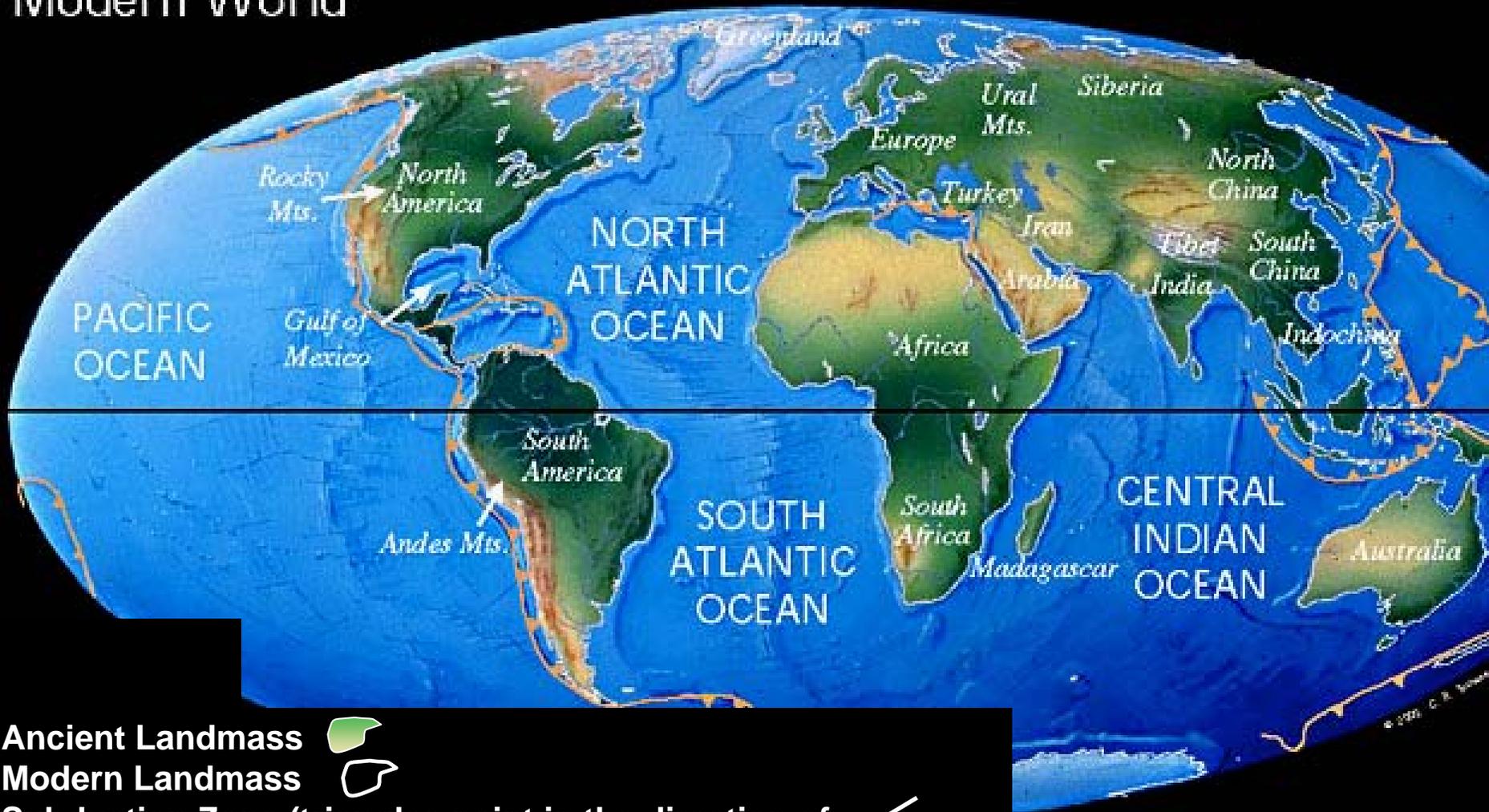
Sea Floor Spreading Ridge 

Diagram from Paleomap Project web site:
<http://www.scotese.com/earth.htm>

Modern World



Ancient Landmass 

Modern Landmass 

Subduction Zone (triangles point in the direction of subduction) 

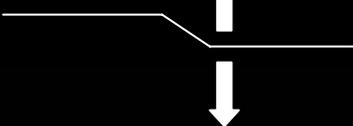
Sea Floor Spreading Ridge 

Diagram from Paleomap Project web site:
<http://www.scotese.com/earth.htm>

Future World + 50 Ma



Ancient Landmass



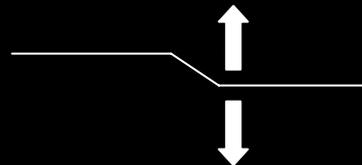
Modern Landmass



Subduction Zone (triangles point in the direction of subduction)



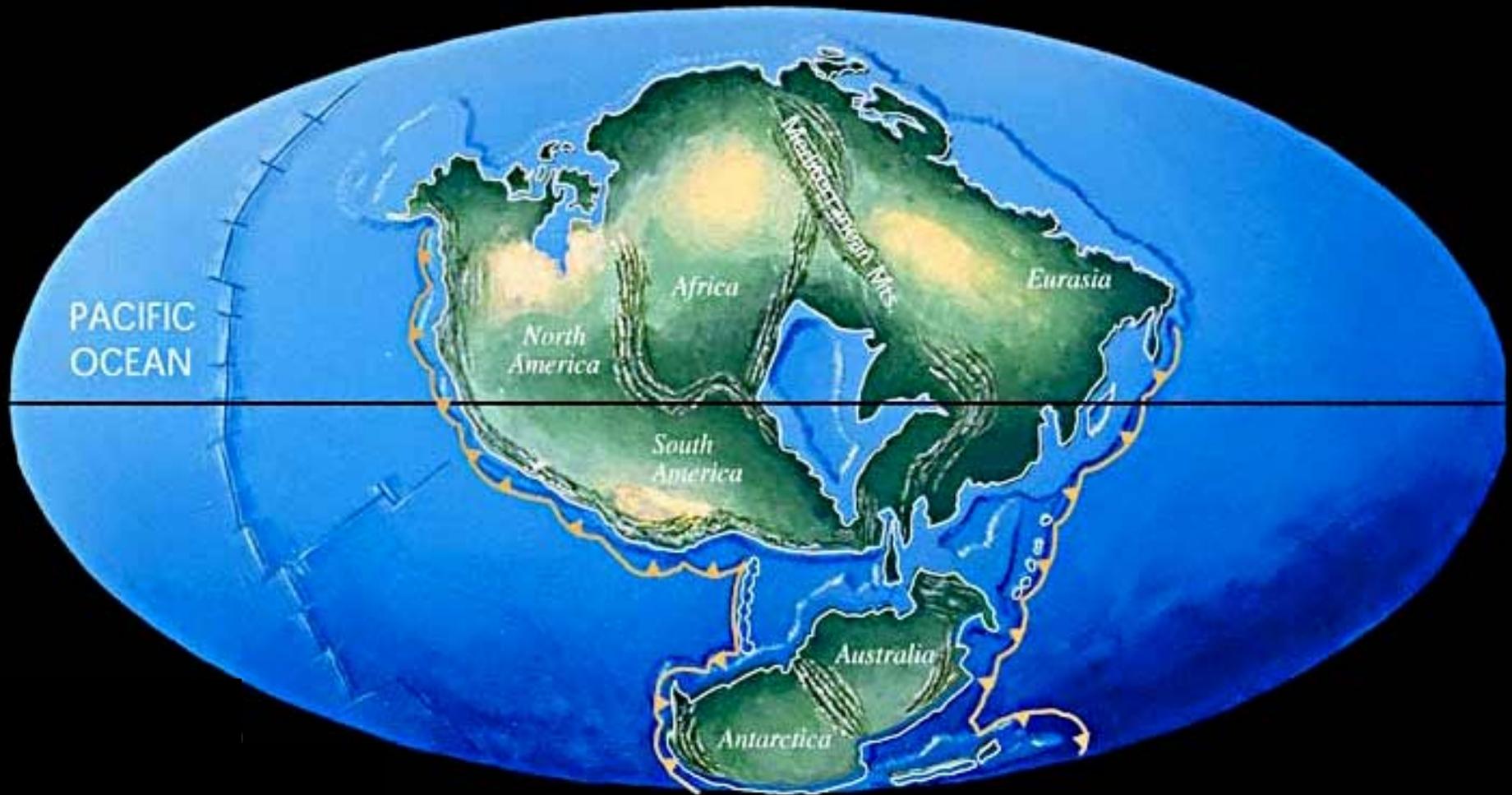
Sea Floor Spreading Ridge



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Diagram from Paleomap Project web site:
<http://www.scotese.com/earth.htm>

Future World + 250 Ma



Ancient Landmass



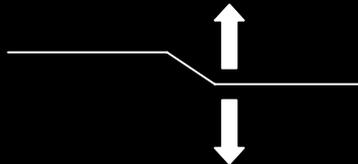
Modern Landmass



Subduction Zone (triangles point in the direction of subduction)



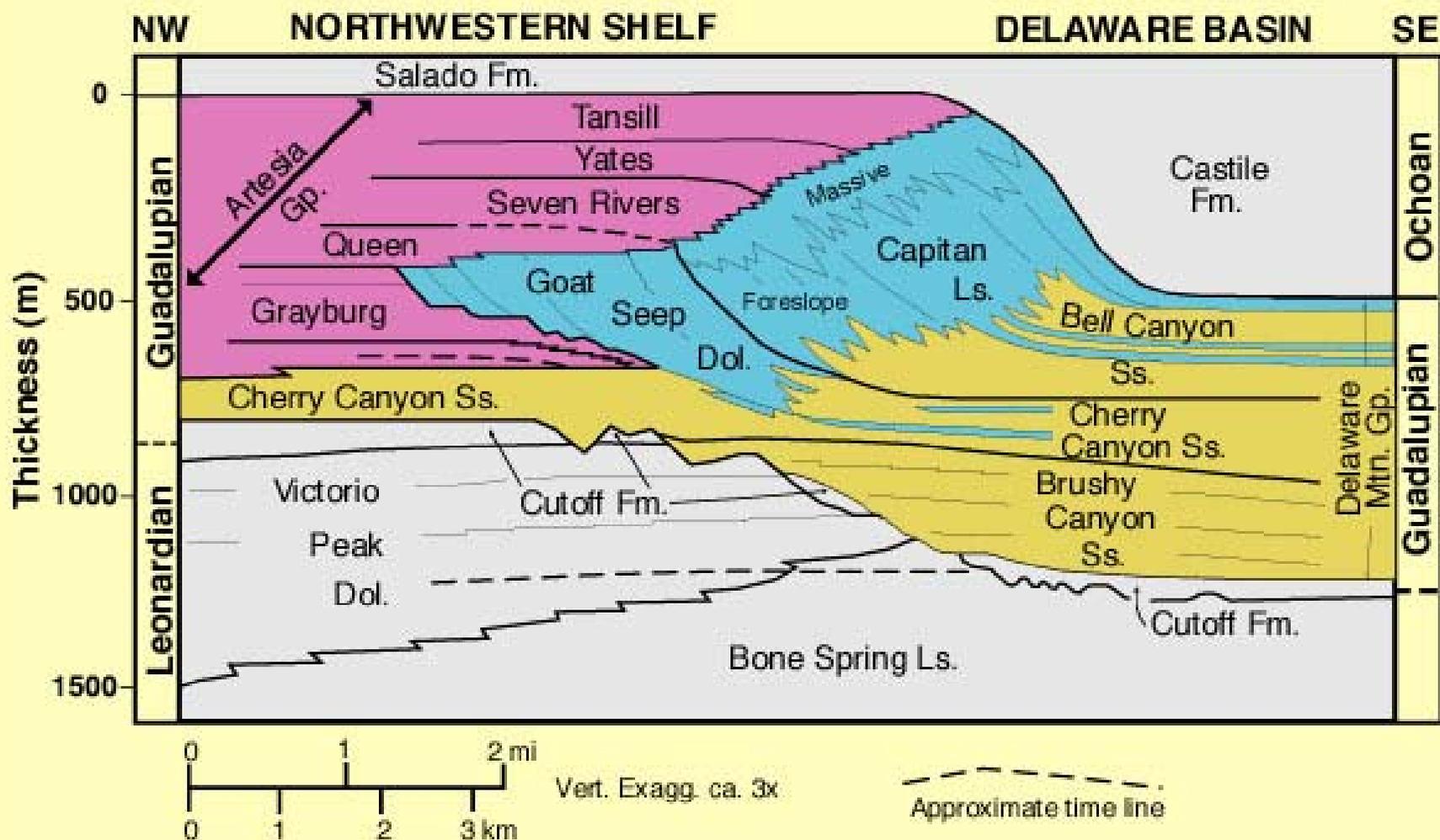
Sea Floor Spreading Ridge



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Diagram from Paleomap Project web site:
<http://www.scotese.com/earth.htm>

Delaware Basin Stratigraphy



After King (1948), Hayes (1964), Tyrrell (1969) and Pray (1988)

Image from P. Scholle at New Mexico School of Technology:
<http://geoinfo.nmt.edu/staff/scholle/guadalupe.html>

